



EPA Answers Questions About Beeland Well Project

Beeland Underground Injection Control Well

Antrim County, Michigan

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For more information

For questions or more information about the Beeland permit case contact:

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To read the documents

Copies of comments received about the Beeland Group's proposal and EPA Region 5's response to those comments and the final permit can be viewed at:

Mancelona Township Library:

202 State St., Mancelona, Mich.

EPA Region 5: 77 W. Jackson Blvd., Chicago, Ill., contact William Bates for an appointment.

Copies of the final permit can also be viewed at:

Bellaire Library: S. Bridge St.

www.epa.gov/r5water/uic/beeland.htm

U.S. Environmental Protection Agency will make a final decision on a permit for Beeland Group, LLC to construct and operate a deep well in Antrim County for the disposal of nonhazardous liquid waste. The liquid waste (called leachate) containing cement kiln dust will originate from the Bay Harbor, Mich., cleanup site. Residents are keenly interested in the permit application. Here are answers to some frequently asked questions received by EPA:

What is a Class I waste injection well?

Class I is an EPA designation for wells that dispose of industrial waste, municipal waste, radioactive or hazardous waste. The Beeland Group (a wholly owned subsidiary of CMS Energy) Class I well permit only allows for the dispose of nonhazardous industrial waste from the Bay Harobr site.

Are there other wells like this one in the area?

In Antrim County there currently are no Class I wells. However, there are approximately 190 Class II wells. Many of these wells inject liquid waste into the same underground layer of rock as the Beeland Group well. There are about 110 wells related to the production of oil and gas – including both production and Class II injection wells – within a two-mile radius of the Beeland well. EPA's review concluded that the well, if built, would pose no environmental threat to drinking water supplies in the area if constructed and operated properly.

Are there wells like this anywhere else?

There are around 550 Class I wells in the United States. The geology of the Gulf Coast and the Great Lakes area is best suited for these types of wells, and most Class I wells are found in these regions. Nonhazardous industrial disposal wells operate in 19 states. The majority of these wells are in Texas, Louisiana, Kansas and Wyoming. There are 26 active nonhazardous Class I wells in Indiana and Michigan.

Have there been problems with similar wells?

Before EPA regulated underground injection wells there were several incidents where injection wells leaked. Since EPA began regulating them there has not been a documented case of a well contaminating an underground source of drinking water.

What is the permit process?

The process for underground injection control (UIC) permit applications is:

- Submittal of the permit application to EPA.
- Review of the permit application for completeness.
- Possible letter(s) for additional information.
- Technical review of the permit application.
- Possible letter(s) for additional information.

- Preliminary decision on application approval
- Public notice of the draft permit decision.
- Possible public hearing.
- Response to comments.
- Final decision.

What is EPA's role?

EPA's role is to evaluate permit applications and to regulate the construction and operation of the injection well to ensure compliance with the Safe Drinking Water Act. In reviewing the permit application EPA has determined that the Beeland well can operate safely and does not threaten public health or the environment.

What is the state's role?

Michigan Department of Environment Quality's role regarding injection wells is similar to EPA except that MDEQ implements state law. In addition MDEQ is responsible for the surface facility that will be associated with the injection well.

Why is it okay to put the waste there?

Based upon an evaluation of the available geological information, the proposed injection zone has sufficient ability to accept the wastewater and the confining zone of rock will prevent the fluid from moving upward into a source of usable water.

Is the well safe?

Class I injection wells provide a safe means to remove waste from the surface environment by isolating it deep underground, away from drinking water resources. Class I injection wells inject far below the deepest underground source of drinking water. Injection zones typically range from 1,700 to more than 10,000 feet below the surface. The injection zone is separated from sources of drinking water by impenetrable "cap" rock called the confining layer, along with additional layers of rock and sediment that separate the injection layer from drinking water. In addition, the well will be constructed and operated so that the wastewater that is injected will not be able to interact with any known usable water.

Will the well affect ground water or the Jordan River?

The wastewater will stay deep underground confined between layers of rock and will not reach underground sources of drinking water (ground water) or the Jordan River.

Is the ground water a current or potential source of usable water for the community?

The water within the injection zone is not usable as drinking water because it has a high concentration of salts and other substances. However, a source of ground water above the injection zone is currently used as drinking water for the community.

Why did you pick our community?

Beeland Group, LLC chose this site. EPA does not have the authority to choose a location for an injection well. EPA is also not authorized to make decisions on why Beeland Group, LLC chose one site over another. EPA's UIC program can only evaluate location geology, construction and operation issues.

Can't EPA or MDEQ force the company to put it somewhere else?

EPA does not have the authority to force Beeland Group/CMS to select or use a particular location to comply with its wastewater management requirements. EPA has the authority to require Beeland Group/CMS to manage its wastewater and dispose of the wastewater in a safe manner that complies with the law.

How will it affect Lake Michigan?

Stopping contaminated ground water and surface runoff at Bay Harbor from seeping into Lake Michigan will allow the lake to become healthier. The contaminated seepage is treated for high pH levels near Petoskey and then will be shipped to the well for injection. The term pH refers to acidity and alkalinity of a liquid. The lower the pH number, the more acidic it is. The higher the number, the more alkaline it is. This injection zone does not interact with any water bodies on the surface or any underground sources of drinking water.

What is the maximum permitted injection pressure, and if the well adheres to that pressure how much waste could be injected in any given day?

The maximum injection pressure the company requested is 150 pounds per square inch. This is about 531 psi less than the calculated maximum injection pressure. In order to figure out the second part of this question one would need the injection rate. The only injection wells that have a rate limit are Class I hazardous wells.

How long does the permit last?

Every Class I well must have a permit to operate. Each permit is valid for up to 10 years. Owners and operators of Class I wells must meet specific requirements to obtain a permit. These requirements address the location, construction, operation, monitoring and testing, reporting and recordkeeping, and closure of Class I wells. Permits are renewable for up to an additional 10 years.

Where is the waste from?

The nonhazardous wastewater that will be transported by truck to the Alba site is from the Bay Harbor cleanup site near Petoskey.

What is being put in the well?

This fluid is ground water and surface runoff that has come into contact with cement kiln dust piles. The water contains trace levels of metals and has a high alkalinity (pH greater than 9). Sometimes the pH of the contaminated water reaches a level that EPA considers hazardous. To remove this water from the site, CMS Energy treats the water until the pH is at a nonhazardous level. All of the wastewater injected into the well will be nonhazardous. The pH of natural waters typically ranges between 4 and 10.

Is there any other way to dispose of the wastewater?

The options that are being studied for disposing of the collected wastewater include:

- Discharge to surface water – at the site under a National Pollutant Discharge Elimination System permit or at an existing publicly owned treatment works.
- Deep well injection.
- Land application.

Each disposal method has both administrative and technical issues to be evaluated in detail and a final, long-term solution to be implemented. EPA and CMS are looking at ways to significantly reduce the amount of wastewater by containing or isolating waste that is causing the contamination.

If there are alternative disposals, why weren't they chosen?

A number of factors go into evaluating options, such as protection of human health and the environment, the ease of implementing the option, short- and long-term effectiveness, community acceptance and cost. All these factors are considered before selecting the long-term solution. In the case of wastewater from the Bay Harbor site, no long-term solution has been chosen yet.

When the trucks bring waste to the site is it fed directly into the well or is there on-site storage?

There will be on-site storage, which MDEQ is permitting. Currently, the company is looking to haul around 135,000 gallons of wastewater to the site per day.

Do you have any idea how much waste they are planning to dispose of?

We do not really know. The permit is good for 10 years and then would have to be renewed. If the company injects for 10 years at a rate of 135,000 gallons a day, the volume would be about 500 million gallons.

To increase the volume of waste discharged at the facility, what does the company need to do?

There is nothing the company would need to do as it relates to the EPA permit. MDEQ may have to alter its surface facility permit to allow the increase.

Explain how the volume of waste the well can handle would be determined.

The volume of waste a well can handle is determined by the size of the tubing, rate of injection and the ability of the underground rock formation to accept fluid.

What are the risks that the waste will leak from the well?

Since the start of EPA's Underground Injection Control program, there has not been a documented case of a well contaminating an underground source of drinking water. There are several safeguards established to prevent the well from contaminating an underground source of drinking water. The injection pressure is limited to ensure that no fractures in the injection zone or confining zone are created during the process. Periodic mechanical integrity tests are required to ensure the well does not have leaks, which would allow the wastewater to move into an underground source of drinking water.

Does the state require anything in its permit?

Yes. MDEQ also requires chemical analysis of the waste in its permit.

Is the waste harmful?

The Bay Harbor wastewater is nonhazardous. Before the ground water and runoff is removed, it is treated to lower the pH. However, the wastewater is still not drinkable. There is a high concentration of salts in the water as well as trace levels of other constituents, such as arsenic, that do not meet the drinking water standard.

How long will disposal go on?

Every Class I well must have a permit to operate. Each permit is valid for up to 10 years. Owners and operators of Class I wells must meet specific requirements to obtain or renew a permit.

What safety precautions will be taken while waste is being hauled in?

Tanker trucks will be filled with wastewater at the pretreatment plants at the Bay Harbor site. Transporters must be licensed and are required to follow Michigan Department of Transportation's regulations for packaging (to prevent leakage during transport), labeling and marking, and must use required placards to ensure safe transport.

DOT requires testing prior to transport.

What other assurance do we have the waste is not hazardous?

The company is required to send EPA monthly chemical analysis of the injected materials. Because this is a nonhazardous well permit, if the analysis shows the waste is hazardous they would be violating the permit.

Does the state require anything in its permit?

Yes. MDEQ also requires chemical analysis of the waste in its permit.

Is the waste harmful?

The Bay Harbor wastewater is nonhazardous. Before the ground water and runoff is removed, it is treated to lower the pH. However, the wastewater is still not drinkable. There is a high concentration of salts in the water as well as trace levels of other materials, such as arsenic, that do not meet the drinking water standard.

Is it accurate that wastewater only has to be below a pH of 12.5 for transport?

No. In order to be shipped, the wastewater must also be tested under federal regulations for its corrosive nature.

Who is paying for the disposal?

CMS Land Co. is paying for the collection, transportation and disposal of the wastewater. CMS signed a legal agreement with EPA to prevent releases of high pH wastewater (greater than 9.0) to Lake Michigan from the Bay Harbor site. The agreement also requires CMS to investigate the nature and extent of site contamination and to evaluate long-term alternatives for addressing the contamination.

Why is that company paying for disposal?

The disposal of this wastewater is a part of the Bay Harbor site agreement between CMS and EPA.

Has EPA evaluated whether this is an environmental justice site?

Environmental justice rules require EPA to account for low-income or minority populations when considering cleanup issues. EPA completed an environmental justice evaluation and included the results in the response-to-comments document. The evaluation shows there is no environmental justice issue with the chosen well site.

I still don't want it -- what can I do?

Anyone who filed comments on the draft permit or participated in the public hearing may petition the Environmental Appeals Board to review any condition of the final permit decision. Such a petition should include a statement of the reasons supporting review of the decision, including a demonstration that the issue was raised during the public comment period (including the public hearing). The petition should, when appropriate, show the permit condition being appealed is based on a fact or conclusion of law that is clearly erroneous, or an exercise of discretion or an important policy consideration that the Environmental Appeals Board should review.

If you wish to request an administrative review, submit it *by mail* to:

U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board (MC 1103B)
Ariel Rios Building
1200 Pennsylvania Ave. N.W.
Washington, D.C. 20460-0001

Requests sent *by express mail* or *hand-delivered* must be sent to:

U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board
Colorado Building
1341 G St. NW, Suite 600
Washington, D.C. 20005

An appeal must be received by March 12, 2008.